



SAN BERNARDINO MICROWAVE SOCIETY, Incorporated

FOUNDED IN 1966

A NON-PROFIT AMATEUR TECHNICAL ORGANIZATION DEDICATED
TO THE ADVANCEMENT OF COMMUNICATIONS ABOVE 1000 MC.

W6IFE Newsletter

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At the **6 June** 2002 meeting of the SBMS will be a technical talk on interfacing transverters and IF rigs presented by a variety of people. This will be a theoretical as well as a hands-on program. We will discuss and have conversion information for interfacing 10 and 24 GHz transverters to the following rigs as well as the use of an intermediate IF to 10-meter transceivers. There will also be a general discussion on power levels, separating the transmitter and receiver, and switching/sequencing. We will discuss: FT790MKII, TR571A, FT290, TS520/930, TS 700A, Radio Shack HR2010, FT 817 as well as others. The SBMS meets at the American Legion Hall 1024 Main Street (south of the 91 freeway) in Corona, CA at 1900 hours local time on the first Thursday of each month



Last meeting Ed Munn, W6OYJ was presented a Life Time Achievement Plaque by SBMS President Doug Millar for all his efforts in the microwave arena beginning in 1955 with San Bernardino Microwave Society activities in Corona through his present day activities helping keep microwaves in the forefront in San Diego Microwave Group and SBMS. Ed was a coworker with the founders of SBMS at Naval Ordnance Laboratory in Corona. Ed has put many hours of hilltop sitting and experimenting. Ed continues experimenting and putting material on the San Diego section of the SBMS web site for others to read and experiment on their own. Ed was voted a senior member many years ago. Ed continues to be one of the out standing members encouraging others to get out and talk with someone on the air.

Last meeting- Jeff, KN6VR talked about the basics of noise figure and the measurement. Thank you Jeff. Dave, WA6CGR and Larry, K6HLH had automatic noise figure measuring instruments, which would tell one the gain of a device, and its noise figure. Thank you for bringing in the equipment and providing data on devices. Several people carried in amplifiers and rigs to measure. Doug, K6JEY and John, N6AX had their 24 GHz rigs present and made a contact across the room.



Bill, WA6QYR (above, photo by K6RRA) had his 3.4 GHz 45 loop yagi present to show the hardware that had been tested on the WA6EXV antenna range and the data appeared in last months newsletter. It was noted that this is probably as high in frequency one wants to try to build loop yagis just due to the dimensions. Bill purchased the element kit from Directive Systems and assembled it on the left over boom material from the similar kit on 2.4 GHz. Welcome to new members Rick, W6ESS of Placentia; Steve, KE6KYD of Ladera Ranch; William, KG6BIB of Ramona. 22 people present.

Prez Sez-Hope you are getting ready for the contest. It is about as much fun as a person can have. With a bit of help, I just finished my 24 GHz narrowband radio and am retouching my 10 GHz radio. On to power management, recharging batteries, and adding a power outlet in the rear of my van.

If you have any interest at all in the 10 GHz and Up Contest in Aug. and Sept., be sure to come to the next few meetings. We are going to do some serious planning and are looking forward to a great contest experience. We would like to have a number of people go out in groups, so if you are a beginner this might be a great way to get your feet wet with other operators.

I expect some of us will be using the June VHF Contest to do a little testing and operating on the very VHF bands and will be discussing it during the meeting.

Just talked to Sam, K6VLM, and he is doing much better. I think he even mentioned turning on his soldering iron. (For those not hearing, Sam had a stroke some weeks back.) 73's Doug, K6JEY

Scheduling

June 8-10, 1800Z - 0300Z - ARRL June VHF QSO Party

July 11

August 1 Contest get ready session. Maps, advice, supply lists and liaison information

August 3-4, 1800Z - 1800Z - ARRL UHF Contest

August 12, 1720Z - Perseids meteor shower

August 17-18, 8 AM - 8 PM - ARRL 10-GHz Cumulative Contest

September 5 K6JEY session on frequency measurement and calibration.

September 14-16, 1800Z - 0300Z - ARRL September VHF QSO Party

September 21-22, 8 AM-8 PM - ARRL 10-GHz Cumulative Contest

Sept-Oct, dates TBA, Fall Sprints

October 3 24 GHz testing and equipment review. Bring your rig and get it tested.

October 24-27 - Microwave Update 2002/Eastern VHF-UHF combined Conference
sponsored by N.E.W.S.

November 7 WA6JBD program on Network Analyzers.

November 19, 0040Z - Leonids meteor shower

December 5 5.7 GHz gear report and testing.

December something Christmas party at Dave's??

December 14, 1000Z - Geminids meteor shower

Wants and Gots for Sale

For Sale: HP 5245L counter with plugins to 12 GHz and manual \$100 Larry K6HLH ljohns@qnet.com

Want/ Borrow: EIP545 counter manual Larry K6HLH ljohns@qnet.com

Want: 1 or 2 6BZ8 and 6CG8 tubes for rehabbing 2 Gonset 2 mtr am rigs Kurt K6RRA k6rra@gte.net

For Sale: dc-dc voltage converters +5v dc to –5 v dc \$1 each John KJ6HZ 909-683-1434

Want: 2 GHz MDS dish John KJ6HZ 909-683-1434

Want: WR-42 waveguide 2 inches min John N6AX.

Want: HP435 power meter sensor pin connections Dick K6HIJ 760-253-5127

For Sale: I have a Systron Donner Spectrum Analyzer for sale. Systron Donner 762-1 Spectrum analyzer. Goes up to at least 26 GHz direct. Has 809 plug in and 712-1 (standard) display. It has an additional unit built in across the top of the analyzer which is a "Marker/Signal Source Unit". It has 5 and 50 MHz markers, markers at 1.03 GHz and a sweep oscillator for 2.6-3.0 and .9-1.4 GHz to do swept measurements with the analyzer. With manual. in great shape. It is in a regular SD yellow instrument case, not a transit case. I will also includes a parts analyzer with a spare RF plug-in (non functioning) and display tube (good). \$1000 plus shipping from 90806

Calibrated FRK Rubidium \$500, AIL 727 Analyzer with manual \$600.

For those of you who are doing precise frequency measurement, I have a couple of things that may help for sale.

1. Spectracom 8161 VLF frequency comparator, with manual, active antenna, (small loop stick), internal batteries and very nice internal double oven oscillator. Extra rolls of paper for chart recorder. Excellent shape. \$400. Plus shipping from 90806

2. HP 5370A Time Interval Counter with manual and high stability oscillator. (Counts to 100 MHz to twelve digits, does time interval down to 20 ps. \$500 plus shipping.

3. Austron Loran time base comparator model 2100f. Excellent shape with antenna and manual. \$350 plus shipping. Antenna is pick up only.

Contact Doug Millar K6JEY in Long Beach via email or phone: 562-424-3737

Want about 8 inches of WR-42 waveguide John, KJ6HZ 909-683-1434

Activity reported at the 2 May SBMS meeting Doug, K6JEY got his 24 GHz rig working and had it to the meeting to demonstrate; Mel, WA6JBD reworked his 10 GHz rig with new LO; Gary, W6KVC is moving to mountain place with a view; Chuck, WA6EXV has finished the antenna for the 1296 receive end of the translator and is working on the 2304 MHz antenna, and has 1 w 24 GHz amplifier device but needs wire bonding to get some electrical problems fixed; Bill, WA6QYR built the 3.4 GHz 45 loop yagi and has been working on a portable stand for the field; Ed, W6OYJ reported that Kerry, N6IZW has some 5 inch lenses for the communicator, W6DXJ and WA6VLF had a 5.6 GHz contact and Chuck WB6IGP has mods to at TVRO LNA on the web site; Ken, WB6DTA has been reworking some antennas; John, N6AX had his 24 GHz rig to demonstrate; Rick, W6ESS is moving his 10 GHz rig in to a MACOM dish; John, KJ6HZ did some 24 GHz work for AO-40 and building another type of patch antenna; Kurt, K6RRA talked about getting some COOL AMP plating material; Dave, WA6CGR worked on preamp for W6YLB, gave a talk at the Downy Club, had 6 10 GHz contacts for the special event in Diamond Bar; Dick, K6HIJ had some new badges for people and has a new to him CNC mill; Chuck, W7VX is building LO's on various bands; Larry, K6HLH's rotor broke and he had two meter EME contact S52LM.

OFF the web- a new article by Chuck Houghton, WB6IGP has been added to the SBMS Web Pages. It describes how to modify 12 GHz TVRO Low Noise Block Down Converters to perform as excellent Low Noise Amplifiers for 10.368 GHz. These units, with WR-75 waveguide input can be mounted close to your antenna feed to provide noise figures in the 0.8 to 1.3 dB range, with gain around 25 dB. Look for the article at <http://www.ham-radio.com/sbms/>, then scroll down to the section on "Technical Information / Papers & Software", then to the section "Technical Papers from the San Diego Microwave Group". 73s from Ed, W6OYJ (858) 453-4563

Measured Data- Doug's (K6JEY) amplifiers from the last newsletter and meeting were with the 47 GHz modules from W0EOM. Bill, WA6QYR tested some amplifiers that he had purchased.

Output dBm

In dBm 1.2GHz 1.8G 2.0G 2.5G 3.0G 3.5G

-40 -20 -20 -25 -25

-30 -10 -10 -14 -14

-25 -5

-20 +1 0 -4 -3 -18

-15 +5

-10 +10 +10 +5 +5 -8

-3 +10

0 +12 +15 +10 +10 +1

So they look like medium power amplifiers with gain from 1.2 to 3.0 GHz. Noise figure has yet to be checked. The 47 GHz module is described to a limited degree in the 2001 Microwave Update Proceedings.

Another "shared" use of all that wide-open space we got "given" somewhat in "trade" for the rape of our other UHF/Microwave bands.

From the CGC communicator --CURIOUS EXPERIMENTAL GRANTS

WC2XUT - South Coast Air Quality Management District -New experimental to operate on 915 MHz to operate a wind profiler radar for meteorological studies. Fixed: El Toro/Irvine, CA

Yes and they have 4 more two at John Wayne airport, Ontario Airport, and in Moreno Valley

400 W ERP, 12 us pulse, 12.7 beam width.

WC2 XPY, WC2XPZ, WC2XQA, WC2XQB, WC2XUT 73 Robin, WA6CDR and Dick, WB6DNX



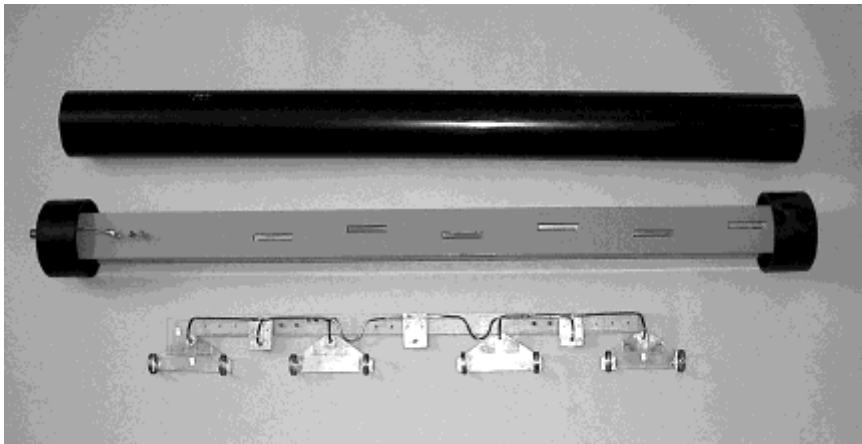
Larry, K6HLH in front of his noise figure equipment making measurements while some of the membership looks on at the May SBMS meeting. (above) Photo K6RRA



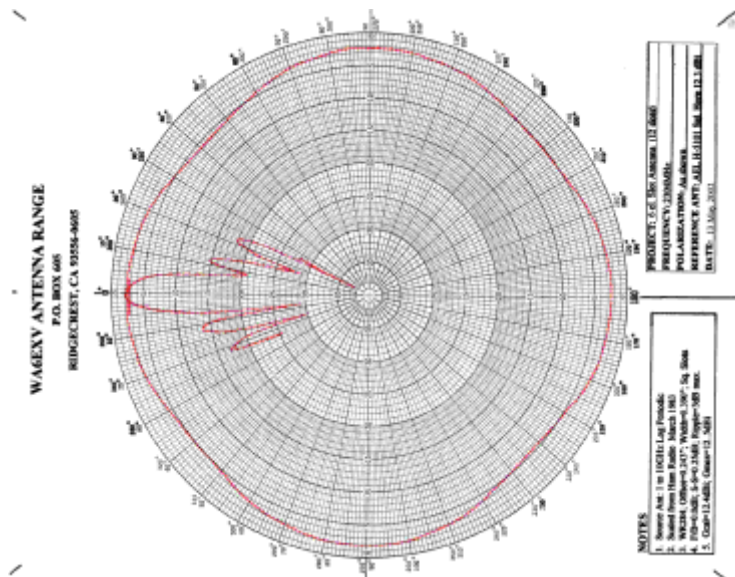
Dave, WA6CGR (above, sitting front right) carried in a lot of test equipment in addition to the noise figure meter. He tested the majority of devices having a number of converters and power supplies at his disposal. Even some

24 GHz "things" got checked out. Photo K6RRA.

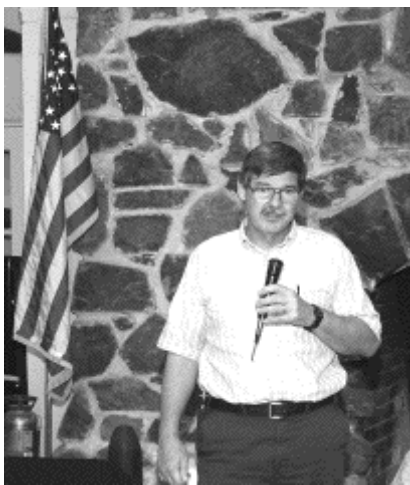
73's Bill



These are the parts of the antenna system Chuck, WA6EXV is building for the SBMS translator. Input is to be 1296.0 to 1296.2 MHz and output on 2304.6 to 2304.8 MHz. There is a beacon on 2304.373 MHz. The eight-loop horizontally polarized omni-directional antenna on the bottom will fit into an ABS tube like on the top to protect it from the weather on top of 6000 ft Heaps Peak. The six slot horizontally polarized omni-directional antenna will fit a similar ABS tube to protect it. It is envisioned that the antennas would be stacked vertically off on leg of the tower just above the building on Heaps. The WA6EXV 8 w beacon has been burned in as well as the translator built by Sam, K6VLM. Chip, N6CA has built a filter to precede the 1296 MHz receiver. There will be some more full system testing prior to the installation on Heaps.



Jeff, KN6VR (below) presented a short review of noise figure measurement and what it is all about during the 2 May 2002 SBMS meeting. Photo by Kurt, K6RRA. The San Bernardino Microwave Society is a technical amateur radio club affiliated with the ARRL having a membership of over 90 amateurs from Hawaii and Alaska to the east coast. Dues are \$15 per year which includes a badge and monthly newsletter. Your mail label indicates your call followed by when your dues are due. Dues can be sent to the treasurer as listed under the banner on the front page. If you have material you would like in the newsletter please send it to Bill WA6QYR at 247 Rebel Road Ridgecrest, CA 93555, bburns@ridgecrest.ca.us, or phone 760-375-8566. The newsletter is generated about the 15th of the month and put into the mail at least the week prior to the meeting. This is your newsletter. SBMS Newsletter material can be copied as long as SBMS is identified as source.



San Bernardino Microwave Society newsletter

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USA